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ABSTRACT

Relationships between kindergarteners' symbolic functioning in free play, selected demographic variables (sex, age, and socioeconomic status), and the children's ability to generate isolated written words were investigated. Sixty-five kindergarteners (37 male, 28 female) were tested and observed in their classes over a 4-week period. Play was observed and ranked according to Smilansky's cognitive play categories. Writing ability was measured by students' fluency in writing isolated words. Multiple regression and ANOVA procedures were employed to determine the extent to which play, SES, sex and age predicted student achievement. Play was a significant predictor of success in writing. SES, age and sex appeared to have little influence on the prediction of achievement. There was a significant main effect due to play on the achievement variable. Post hoc analyses indicated that dramatic play had the most significant effect on writing. It is concluded that teachers of young children can facilitate achievement in reading and writing by providing opportunities for dramatic play. (Author/RH)

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Symbolic functioning and children's early writing: The relations between kindergarteners' play and isolated word writing fluency*

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Symbolic functioning and children's early writing: Relations between kindergarteners' play and isolated word writing fluency.

The study examined the relations between play and selected demographic variables (sex, age, and SES) and kindergarteners' word writing fluency. Play was observed and ranked according to Smilansky's cognitive play categories. Writing was measured by students' fluency writing isolated words.

Sixty-five kindergarteners (37 male, 28 female) were tested and observed in their classrooms over a four week period. Multiple regression and ANOVA procedures were employed to determine the extent to which play, SES, sex, and age predicted student achievement. Play was a significant predictor of success on writing ($p < .01$). SES, age and sex appeared to have little influence on the prediction of achievement. There was a significant main effect due to play on the achievement variable ($p < .01$). Post hoc analyses indicated that dramatic play had the most significant effect on writing ($p < .05$). Implications for teaching are made.

The development of children's writing skills has been subjected to an interdisiplinary onslaught by psychologists (e.g., Olson, 1977), educators (e.g., King & Rentel, 1979), and ethnographers (e.g., Florio, 1979). This developmental process has been characterized by Wheeler (1971, cited in King & Rentel, 1979) as having children first generating designs and pictures, later generating isolated letters and words, and finally word phrases and words in sentences. Most of the research on children's development of writing competency, however, has focused on the higher end of the continuum: that is, most research has been on children's writing words in sentences. The general intent of this paper was to examine factors related to an earlier stage of writing development, writing isolated words.

Clay (1975) stated that children construct individual words only after they discover that individual letters carry meaning (the sign concept) and that words are built out of these same individual letters. This specific skill of noting sign-meaning relations develops during the preschool period, as part of the more general development of representational competence. That is, during this period children come to realize that symbols, or signs, represent other classes of objects or concepts (Sigel, 1968). Fein (1979) refers to this as the symbolic function. Applying the symbolic function to writing: preschoolers' are beginning to use socially agreed upon signs (letters) to represent concepts. The specific purpose of this study was to investigate the relations between kindergarteners' symbolic functioning in free play and their ability to generate isolated written words.

Developmental psychologists (e.g., Piaget, 1962; Fein, 1979) have suggested that insight into children's ability to symbolize, i.e. to consciously separate symbols from concepts, can be gained by observing

children's pretend play. Smilansky (1968) has developed a system, based on Piaget (1962), which enables an observer to categorize a children's play along a cognitive/symbolic hierarchy. This hierarchy, empirically verified by Rubin and Maioni (1975), consists of: functional play, where the child simply exercises his/her muscles (with or without objects); constructive play, where the child creates something; dramatic play, where the child uses language to take on a pretend role; and lastly, games-with-rules, where the child's play is subordinate to a prearranged set of rules. In order to move through the continuum children must utilize progressively more demanding cognitive processes. That is, to move from functional to constructive play, children must coordinate those movements used in functional play toward a goal. Both dramatic play and games-with-rules are yet more demanding cognitively because they not only require children to be goal oriented, but they must also use socially shared symbols to sustain play. Dramatic play requires children to use a symbolic medium, language, to define symbolic roles for objects and players. For example, a doll may be used to represent a live child. Games-with-rules require children to accept an arbitrary, or symbolic, set of rules and to subordinate their behavior to the rules in order to sustain play. Thus, players in both dramatic play and games-with-rules must define symbol-concept relations, e.g., identify real roles and play roles, in order to sustain play.

It will be argued here that the symbolism exhibited by kindergarteners in free play is related to the symbolic processes involved in writing isolated words; both processes involve using socially accepted symbols to encode concepts. The specific hypotheses posed follow:

1. Children's play will be the best predictor of word writing fluency.

2. Play will have a significant main effect on isolated word writing.

3. Symbolic forms of play (dramatic play and games-with-rules) will have the largest effect on isolated word writing fluency.

Method

Subjects

The sample consisted of sixty-five children from mixed socio-economic backgrounds (37 males, 28 females) attending morning and afternoon kindergarten classes in a rural public school. The sample consisted of all the children whose parents had consented to their involvement in the study. The age of the sample ranged from 67 to 78 months ($\bar{x}$ = 71. 523, SD = 3.833).

Procedures

All kindergarteners in the school were given the Metropolitan Readiness Test Level II, Form P (Nurss & McGauvran, 1976) in the beginning of May as part of the school district's regular testing program. Robinson's test (1973, reproduced in Clay, 1975) of writing fluency was also administered to all children at this time. Raw scores from Robinson's test were used in regression and ANOVA analyses. The total writing fluency score was composed of the following subscores: writing one's own name; writing others' names; writing names of colors; and a miscellaneous category.

Two weeks after the districtwide testing ended, two experimenters observed each child for five twenty minute periods during the children's free play periods. Two observers classified each observed play episode according to Smilansky's (1968) cognitive hierarchy of play: functional, constructive, dramatic play, or games-with-rules.

Functional play, coded 1, was defined as repetitive muscle movement,

with or without objectives. Constructive play, coded 2, had children manipulating objects to build something. In dramatic play, coded 3, the children pretended to be somebody else, whereby they imitated that person in speech and action; language was used to define objects, activities, and situations. Games-with-rules, coded 4, had children adapting their behavior to a set of prearranged rules. Inter-rater agreement between two observers for the categorization of play episodes was 84%. The child's overall play rating was the type of play most often observed (the mode of all five of the ratings). The order in which each child was observed was determined by random assignment.

Children's socio-economic status (SES) was ranked as follows: upper-middle (coded 1), middle-middle class (coded 2), lower-middle class (coded 3), and lower class (coded 4) ($\bar{x}$ SES rank = 2.309, SD = .949). Parent's level of education was the criterion on which SES was based. Children's sex was coded 1 for male and 2 for female. Age was coded as age in months.

Results/Discussion

Dramatic play was the most commonly coded play category (32), followed by constructive (22), and functional play (11). No instances of games-with-rules were observed, therefore, this category was not included in subsequent analyses.

The intercorrelations for play and demographic predictors (SES, age, and sex) and the achievement variable (total writing fluency, $\bar{x}$ = 6.166m SD = 4.449), are as follows: play and writing, r = .50 ($p < .001$); writing and sex, r = .02 (ns); play and SES, r = .21 (ns); play and age, r = .05 (ns). These data suggest the intercorrelation between play and total writing fluency was significant. The correlation, r (65) = .36, $p < .01$, for SES

and writing, though significant, was quite low; accounting for only 12% of the variation in total fluency.

The intercorrelations among play, sex, and age, were non-significant. This finding was desirable because the ability of the predictors to explain, or account for, the variance in the achievement variables was thereby maximized. In short, the three levels of play (functional, constructive, dramatic) were highly related to the achievement variable (total word writing fluency), whereas, the demographic variables (SES, age, and sex) appeared to be minimally related to the achievement variable.

To obtain a better understanding of the relations among these variables stepwise multiple regression analyses were employed. The analyses attempted to identify the variables which were the best predictors of writing as measured by each of the writing subcategories and the sum of the subcategories (total fluency). The regression analyses show the relations among the predictor variables (play, SES, age, and sex) and the criterion variables (own name, others' names, colors, miscellaneous, and total fluency). The multiple correlations (R) obtained for the four criterion variables with total fluency ($\bar{x}$ for the total fluency = 6.166, SD = 4.449) were: .46** for play alone with fluency; .523** for play and SES with fluency; .529** for play, SES, and age with fluency; and .530* for play, sex, age, and sex with fluency (* = $p < .05$; ** = $p < .01$). The multiple correlations (R) for the four predictor variables with each subcategory follow (* = $p < .05$; ** = $p < .01$):

own name : ($\bar{x}$ = 1.547, SD = .550)
: play = .246
: play and SES = .327
: play, SES, and sex: .34483
: play, SES, sex, and age: .34938

others' names	:	($\bar{x}$ = 1.428, SD = 1.416)
	:	play = .249**
	:	play and SES = .288**
	:	play, SES, and age = .312**
colors	:	($\bar{x}$ = .500, SD = 1.173)
	:	play = .326*
	:	play and sex = .362
	:	play, sex, and age = .384
	:	play, sex, age, and SES = .399
miscellaneous	:	($\bar{x}$ = 2.690, SD = 3.211)
	:	SES = .279
	:	SES and play = .369
	:	SES, play, and age = .400
	:	SES, play, age, and sex = .408

Inspection of these data indicate that in all cases play was the most significant predictor variable related to achievement in writing. In fact, the play variable alone, in step 1 of the various regression analyses, predicted between 21 to 5 percent of the variance for the criterion variables. Inspection of the F statistics for the analyses further substantiates the importance of play; the correlations obtained for play were found to be significant across the following achievement measures: total fluency, others' names, and colors. These findings suggest that a child's level of play is a powerful predictor of writing achievement in kindergarten.

Play and SES together were found to be significantly related to total writing fluency ($R = .523$, $p < .011$), and writing others' names ($R = .288$, $p < .01$). The increase in the multiple correlation due to the inclusion of SES in the regression equation was .05 and .03 for total fluency and others' names, respectively. This finding indicates that play and SES together were useful predictors of writing achievement. However, the contribution of SES to the explanation of the variation in writing achievement should be considered minimal, given the small increments in explained variance.

Separate one-way ANOVAs were computed to analyze the effect of play

on achievement in total writing fluency and on each of the writing subcategories. No significant main effect for play was detected on the following subcategories: own name writing, F (2,39) = 1.270, $p < .292$; color, F (2,39)= 2.746, $p < .076$; miscellaneous, F (2,39) = 2.585, $p < .088$. A significant main effect for play was detected on others' names, F (2,39)= 6.475, $p < .003$, and on total writing fluency, F (2,39) = 6.626, $p < .003$. Newman-Keuls post hoc analyses, set at the .05 level, were subsequently computed on each significant main effect. For the others' names subcategory there was a significant difference between dramatic play ($\bar{x}$ = .42) and constructive play ($\bar{x}$ = 1.083); the difference between functional and constructive was not significant. Newman-Keuls analyses, set at the .05 level, on total fluency were similar: there was a significant difference between dramatic play ($\bar{x}$ = 8.173) and both functional ($\bar{x}$ = 3.428) and constructive play ($\bar{x}$ = 3.916); the difference between functional and constructive play was not significant.

Pooled variance estimate T-tests, comparing sexes, were computed for each writing subcategory and for total fluency; no significant differences were detected.

Results of data analyses indicated that play is a powerful predictor of isolated word writing fluency. Futhermore, symbolic play, in the form of dramatic play had the largest effect on writing fluency. These data suggested that the symbolic process(es) used in dramatic play are similar to the symbolic process(es) used to write individual words. In both writing and symbolic play situations children are using socially defined symbols to represent concepts. For example, in one dramatic play episode a child used a stick to represent a gun. The symbol, stick for gun, was

socially defined when the symbolic transformation was announced to other players: This is my gun. If the child did not define the transformation of stick to gun other players may not have been able to respond appropriately to the role assigned to that prop in the play episode; play probably would not have been sustained. Research has shown that children engaged in dramatic play, as opposed to lower forms of play, tend to explicitly define player and prop roles at the beginning of play episodes (Pellegrini, 1980) to avoid role confusion. For example, a child observed in this study imitiated a play episode by clearly defining players' roles, I'll be the Mommy and you be the Daddy. Play is not sustained when roles are not explicitly defined.

Simons and Gumperz (1980) point out that children must learn to use literate oral language before they are able to write. By literate language they mean language which is not dependent on context to convey meaning. This decontextualized language is characterized by linguistically defined pronouns and lexically defined ojbects. In short, children must convey meaning with words, not through context, e.g., pointing assumes shared meaning assumptions betweeen speakers. As was previously stated, research has shown that children engaged in dramatic play use literate language (Pellegrini, 1980). The language of dramatic play, as opposed to language generated by the same children in constructive play, is highly cohesive; that is, pronouns are typically linguistically defined, explicit topic introductions are used and listeners asked for clarification of roles when ambiguaty does exist. Dramatic play then, seems to facilitate symbolic functioning by giving the child practice at expliciting separating symbols and concepts. Furthermore, children must define socially these symbolic representations. Thus, symbolic play and word writing both seem to be

related to the children's general representational competence: using socially defined symbols to represent concepts.

Implications for Teaching

In order for teachers to facilitate the development of young children's representational competence they must view children as active, not passive, learners. An active learner engages in an activity with other players and chooses objects to be symbolically transformed. He/she then must define the transformation for other players so that the play theme is sustained. In this way children become competent in the process of symbolic transformation. Symbolic transformation has the child using a sign to represent a concept. For example, children may first draw a picture to represent an object. A more abstract transformation would have a child using a written word to represent an object. Similarly in symbolic play children can use objects, or props to help them define a play role, e.g., wearing a dress and not to symbolize an older woman. A more abstract transformation of this play role would have the child verbally defining players' roles, e.g., I'll be the teacher.

The passive learner model of symbolization has a teacher supplying the child with transformations and corresponding labels and asking the child to repeat the labels; for example, Let this shoe be a telephone. In the passive model the child him/herself is neither doing the symbolic transformations nor having to define the transformations for other players. As our, and other, data suggest the symbolizing process itself is related to a number of cognitive achievement skills, e.g., conservations skills (Rubin & Maioni, 1975). Children in the active model symbolically transform and socially define the transformations themselves. They are motivated to execute this process because they typically want to sustain

play episodes; without socially defined symbolic transformations, dramatic play cannot be sustained.

Teachers can use dramatic play to enhance children's active symboling. Teachers can provide basic experience for dramatic play through field trips or literature. These experiences form the basic themes of dramatic play episodes. Initially teachers should provide realistic play props, e.g., dress-up clothes and dolls. Teachers themselves should take part in play episodes as players, not as instructors. Adults also need to help children define role transformations, e.g., "I'll be the mother, what will you be"?

As children become competent dramatic players, teachers should withdraw themselves and explicit props from the play arena. Children should be encouraged to use props which are less realistic representations of the concepts used in the play themes. For example, a teacher should take a doll out of the housekeeping corner and replace it with a block. The block can then be used as a more abstract representation of a baby. In this way children gain practice at having more abstract objects represent concepts. Children who are most competent at dramatic play are typically not dependent upon props for the sustenance of play episodes. They use language to replace props for example: I have my baby with me today.

A final implication of the study relates to using Smilansky's (1968) cognitive hierarchy of play as an instrument to assess children's symbolic play. Research has shown (Smilansky 1968; Rubin & Maioni, 1975; Sponseller & Jaworski, 1979) that the progressions from functional to constructive play and from dramatic play to games-with-rules is indeed cognitively hierarchic; that is, children must go through the lower stages of play before they are capable of reaching the higher stages. Teachers can use this model to chart children's ability to engage in cognitively demanding forms of play. Charting children's play, along with more traditionally

measures of representational competence (letter-sound correspondence, word writing, and sight vocabulary) should provide teachers with a multifaceted system to evaluate children's symbolizing processes.

The intent of this paper was to illustrate how the young child's symbolic functioning in free play is related to achievement in a more traditional academic area, isolated word writing. Strong relations have been suggested. Teachers of young children can use dramatic play in conjunction with reading and writing activities to facilitate achievement in reading and writing. This study, along with others previously cited suggests that the symbolizing skills acquired and refined in play are related to more traditional measures of achievement.

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